Chapter 11 Summary of Parameter Settings

This chapter provides a summary of parameter (Pr.) setting ranges and defaults. You can set, change, and reset parameters through the digital keypad.

NOTE

1) ↗: You can set this parameter during operation
2) The following are abbreviations for different types of motors:
   - IM: Induction motor
   - PM: Permanent magnet synchronous AC motor
   - IPM: Interior permanent magnet synchronous AC motor
   - SPM: Surface permanent magnet synchronous AC motor
   - SynRM: Synchronous reluctance motor

00 Drive Parameters

Pr.	Parameter Name	Setting Range	Default
00-00	AC motor drive identity code	4: 230V, 0.75 kW 5: 460V, 0.75 kW 6: 230V, 1.50 kW 7: 460V, 1.50 kW 8: 230V, 2.20 kW 9: 460V, 2.20 kW 10: 230V, 3.70 kW 11: 460V, 3.70 kW 12: 230V, 5.50 kW 13: 460V, 5.50 kW 14: 230V, 7.50 kW 15: 460V, 7.50 kW 16: 230V, 11.0 kW 17: 460V, 11.0 kW 18: 230V, 15.0 kW 19: 460V, 15.0 kW 20: 230V, 18.5 kW 21: 460V, 18.5 kW 22: 230V, 22.0 kW 23: 460V, 22.0 kW 24: 230V, 30.0 kW 25: 460V, 30.0 kW 26: 230V, 37.0 kW 27: 460V, 37.0 kW 28: 230V, 45.0 kW 29: 460V, 45.0 kW 30: 230V, 55.0 kW	Read only

Pr.	Parameter Name	Setting Range	Default
		31: 460V, 55.0 kW 32: 230V, 75.0 kW 33: 460V, 75.0 kW 34: 230V, 90.0 kW 35: 460V, 90.0 kW 37: 460V, 110.0 kW 39: 460V, 132.0 kW 41: 460V, 160.0 kW 43: 460V, 185.0 kW 45: 460V, 220.0 kW 47: 460V, 280.0 kW 49: 460V, 315.0 kW 51: 460V, 355.0 kW 53: 460V, 400.0 kW 55: 460V, 450.0 kW 57: 460V, 500.0 kW 59: 460V, 560.0 kW 93: 460V, 4 kW 486: 460V, 200.0 kW 487: 460V, 250.0 kW 505: 575V, 1.5 kW 506: 575V, 2.2 kW 507: 575V, 3.7 kW 508: 575V, 5.5 kW 509: 575V, 7.5 kW 510: 575V, 11 kW 511: 575V, 15 kW 612: 690V, 18.5 kW 613: 690V, 22 kW 614: 690V, 30 kW 615: 690V, 37 kW 616: 690V, 45 kW 617: 690V, 55 kW 618: 690V, 75 kW 619: 690V, 90 kW 620: 690V, 110 kW 621: 690V, 132 kW 622: 690V, 160 kW 686: 690V, 200 kW 687: 690V, 250 kW 626: 690V, 315 kW 628: 690V, 400 kW 629: 690V, 450 kW	

	Pr.	Parameter Name	Setting Range	Default
			631: 690V, 560 kW 632: 690V, 630 kW	
	00-01	AC motor drive rated current display	Display by models	Read only
	00-02	Parameter reset	0: No function 1: Write protection for parameters 5: Return kWh displays to 0 6: Reset PLC (including CANopen Master Index) 7: Reset CANopen Slave index 9: Reset all parameters to defaults (base frequency is 50 Hz) 10: Reset all parameters to defaults (base frequency is 60 Hz)	0
↗	00-03	Start-up display	0: F (frequency command) 1: H (output frequency) 2: U (user-defined, see Pr.00-04) 3: A (output current)	0
↗	00-04	Content of multi-function display (user-defined)	0: Display output current (A) (unit: Amp) 1: Display counter value (c) (Unit: CNT) 2: Display the motor's actual output frequency (H.) (Unit: Hz) 3: Display the drive's DC bus voltage (v) (Unit: V_{DC}) 4: Display the drive's output voltage (E) (Unit: V_{AC}) 5: Display the drive's output power angle (n) (Unit: deg) 6: Display the drive's output power (P) (Unit: kW) 7: Display the motor speed rpm (r) (Unit: rpm) 8: Display the drive's estimated output torque, motor's rated torque is 100% (t) (Unit: %) 9: Display PG feedback (G) (refer to Pr.10-00 and Pr.10-01) (Unit: PLS) 10: Display PID feedback (b) (Unit: %) 11: Display AVI analog input terminal signal (1.) (Unit: %) 12: Display ACI analog input terminal signal (2.) (Unit: %) 13: Display AUI analog input terminal signal (3.) (Unit: %) 14: Display the drive's IGBT temperature (i.) (Unit: °C) 15: Display the drive's capacitance temperature (c.) (Unit: °C) 16: The digital input status (ON / OFF) (i) 17: The digital output status (ON / OFF) (o)	3

Pr.	Parameter Name	Setting Range	Default
		18: Display multi-step speed (S) 19: The corresponding CPU digital input pin status (d) 20: The corresponding CPU digital output pin status (0.) 21: Actual motor position (PG1 of PG card) (P.) The maximum value is 32bits display 22: Pulse input frequency (PG2 of PG card) (S.) 23: Pulse input position (PG2 of PG card) (q.) The maximum value is 32bits display 24: Position command tracing error (E.) 25: Overload count (0.00–100.00%) (o.) (Unit: %) 26: Ground fault GFF (G.) (Unit: %) 27: DC bus voltage ripple (r.) (Unit: V_{DC}) 28: Display PLC register D1043 data (C) 29: Display PM pole section (EMC-PG01U application) (4.) 30: Display the output of user-defined (U) 31: Display Pr.00-05 user gain (K) 32: Number of actual motor revolution during operation (PG card plug in and Z phase signal input) (Z.) 34: Operation speed of fan (F.) (Unit: %) 35: Control mode display: 0 = Speed control mode (SPD) 1 = Torque control mode (TQR) (t.) 36: Present operating carrier frequency of the drive (Unit: Hz) (J.) 38: Display the drive status (6.) 39: Display the drive's estimated output torque, positive and negative, using Nt-m as unit (t 0.0: positive torque; -0.0: negative torque (C.) 40: Torque command (L.) (Unit: %) 41: kWh display (J) (Unit: kWh) 42: PID target value (h.) (Unit: %) 43: PID compensation (o.) (Unit: %) 44: PID output frequency (b.) (Unit: Hz) 45: Hardware ID 49: Motor temperature (KTY84-130 only) 51: PMSVC torque offset 52: AI10% 53: AI11% 54: PMFOC Ke estimation value	

	Pr.	Parameter Name	Setting Range	Default
			68: STO version (d) 69: STO checksum-high word (d) 70: STO checksum-low word (d)	
✓	00-05	Coefficient gain in actual output frequency	0.00–160.00	1.00
	00-06	Firmware version	Read only	Read only
✓	00-07	Parameter protection password input	0–65535 0–4: the number of password attempts allowed	0
✓	00-08	Parameter protection password setting	0–65535 0: No password protection or password entered correctly (Pr.00-07) 1: Parameter has been set	0
✓	00-10	Control mode	0: Speed control mode 1: Position control mode 2: Torque mode	0
	00-11	Speed control mode	0: IMVF (IM V/F control) 1: IMVFPG (IM V/F control + Encoder) 2: IM / PM SVC (IM / PM space vector control) 3: IMFOCPG (IM FOC + Encoder) 4: PMFOCPG (PM FOC + Encoder) 5: IMFOC sensorless (IM field-oriented sensorless vector control) 6: PM sensorless (PM field-oriented sensorless vector control) 7: IPM sensorless (Interior PM field-oriented sensorless vector control) 8: SynRM sensorless control	0
	00-13	Torque mode control	0: IM TQCPG (IM torque control + Encoder) 1: PM TQCPG (PM torque control + Encoder) 2: IM TQC sensorless (IM sensorless torque control) 4: SynRM TQC sensorless (SynRM sensorless torque control)	0
	00-16	Load selection	230V / 460V models 0: Heavy load 1: Super Heavy load	0
			575V / 690V models 0: Normal load 1: Heavy load 2: Light load	2

<table>
<tr><th>Pr.</th><th>Parameter Name</th><th>Setting Range</th><th>Default</th></tr>
<tr><td rowspan="3">00-17</td><td rowspan="3">Carrier frequency (kHz)</td><td>Heavy duty
<table>
<tr><th>Control mode / Model</th><th>VF, VFPG, SVC</th><th>IMFOC PG, IMTQC PG</th><th>PMFOC PG PMTQC PG</th><th>PMFOC, IPMFOC</th><th>IMFOC, IMTQC</th><th>SRM FOC*</th></tr>
<tr><td>VFD007–110C23A/E
VFD007–150C43A/E</td><td>2–15</td><td>2–10</td><td>4–10</td><td>4–10</td><td>4–12</td><td>4–8</td></tr>
<tr><td>VFD150–370C23A/E
VFD185–550C43A/E</td><td>2–10</td><td>2–10</td><td>4–10</td><td>4–10</td><td>4–10</td><td>4–8</td></tr>
<tr><td>VFD450–900C23A/E
VFD750–5600C43A/E</td><td>2–9</td><td>2–9</td><td>4–9</td><td>4–9</td><td>4–9</td><td>4–8</td></tr>
</table>
*The default for SRMFOC is 4 kHz.</td><td>8
6
4</td></tr>
<tr><td>Super Heavy duty
<table>
<tr><th>Control mode / Model</th><th>VF, VFPG, SVC</th><th>IMFOC PG, IMTQC PG</th><th>PMFOC PG, PMTQC PG</th><th>PMFOC, IPMFOC</th><th>IMFOC, IMTQC</th><th>SRM FOC*</th></tr>
<tr><td>VFD007–110C23A/E
VFD007–150C43A/E</td><td>2–15</td><td>2–10</td><td>4–10</td><td>4–10</td><td>4–12</td><td>4–8</td></tr>
<tr><td>VFD150–450C23A/E
VFD185–550C43A/E</td><td>2–10</td><td>2–9</td><td>4–10</td><td>4–10</td><td>4–10</td><td>4–8</td></tr>
<tr><td>VFD550–900C23A/E
VFD750–3150C43A/E</td><td>2–9</td><td>2–9</td><td>4–9</td><td>4–9</td><td>4–9</td><td>4–8</td></tr>
<tr><td>VFD3550–5600C43A
VFD3550–5600C43E</td><td>2–9</td><td>2–9</td><td>4–9</td><td>4–9</td><td>4–9</td><td>4–8</td></tr>
</table>
*The default for SRMFOC is 4 kHz.</td><td>4
4
4
3</td></tr>
<tr><td>575V/690V (Light / Heavy / Super Heavy duty)
<table>
<tr><th>Power/ Control mode</th><th>VF, VFPG, SVC</th></tr>
<tr><td>1–15 HP (575V)</td><td>2–15 kHz</td></tr>
<tr><td>20–600 HP (690V)</td><td>2–9 kHz</td></tr>
<tr><td>850 HP (690V)</td><td>2–9 kHz</td></tr>
</table></td><td>6
4
3</td></tr>
<tr><td>00-19</td><td>PLC command mask</td><td>bit0: Control command is forced by PLC control
bit1: Frequency command is forced by PLC control
bit2: Position command is forced by PLC control
bit3: Torque command is forced by PLC control</td><td>Read only</td></tr>
<tr><td>00-20</td><td>Master frequency command source (AUTO)/ Source selection of the PID target</td><td>0: Digital keypad
1: RS-485 communication input
2: External analog input (Refer to Pr.03-00–03-02)
3: External UP / DOWN terminal (multi-function input terminals)
4: Pulse input without direction command (refer to Pr.10-16 without considering direction), use with PG card
5: Pulse input with direction command (refer to Pr.10-16), use with PG card
6: CANopen communication card
8: Communication card (does not include CANopen card)</td><td>0</td></tr>
</table>

	Pr.	Parameter Name	Setting Range	Default
	00-21	Operation command source (AUTO)	0: Digital keypad 1: External terminals 2: RS-485 communication input 3: CANopen communication card 5: Communication card (does not include CANopen card)	0
✓	00-22	Stop method	0: Ramp to stop 1: Coast to stop	0
✓	00-23	Motor direction control	0: Enable forward / reverse 1: Disable reverse 2: Disable forward	0
	00-24	Digital operator (keypad) frequency command memory	Read only	Read only
✓	00-25	User defined characteristics	bit0–3: user-defined decimal place 0000b: no decimal place 0001b: one decimal place 0010b: two decimal places 0011b: three decimal places bit4–15: user-defined unit 000xh: Hz 001xh: rpm 002xh: % 003xh: kg 004xh: m/s 005xh: kW 006xh: HP 007xh: ppm 008xh: 1/m 009xh: kg/s 00Axh: kg/m 00Bxh: kg/h 00Cxh: lb/s 00Dxh: lb/m 00Exh: lb/h 00Fxh: ft/s 010xh: ft/m 011xh: m 012xh: ft 013xh: degC 014xh: degF 015xh: mbar	0

Pr.	Parameter Name	Setting Range	Default
		016xh: bar 017xh: Pa 018xh: kPa 019xh: mWG 01Axh: inWG 01Bxh: ftWG 01Cxh: psi 01Dxh: atm 01Exh: L/s 01Fxh: L/m 020xh: L/h 021xh: m3/s 022xh: m3/h 023xh: GPM 024xh: CFM xxxxh: Hz	
00-26	Maximum user-defined value	0: Disabled 0–65535 (when Pr.00-25 is set to no decimal place) 0.0–6553.5 (when Pr.00-25 is set to 1 decimal place) 0.00–655.35 (when Pr.00-25 is set to 2 decimal places) 0.000–65.535 (when Pr.00-25 is set to 3 decimal places)	0
00-27	User-defined value	Read only	Read only
00-29	LOCAL / REMOTE selection	0: Standard HOA function 1: When switching between local and remote, the drive stops. 2: When switching between local and remote, the drive runs with REMOTE settings for frequency and operation status. 3: When switching between local and remote, the drive runs with LOCAL settings for frequency and operation status. 4: When switching between local and remote, the drive runs with LOCAL settings when switched to Local and runs with REMOTE settings when switched to Remote for frequency and operation status.	0
00-30	Master frequency command source (HAND)	0: Digital keypad 1: RS-485 communication input 2: External analog input (Refer to Pr.03-00–03-02) 3: External UP / DOWN terminal (multi-function input terminals)	0

	Pr.	Parameter Name	Setting Range	Default
			4: Pulse input without direction command (refer to Pr.10-16 without considering direction) 5: Pulse input with direction command (refer to Pr.10-16) 6: CANopen communication card 8: Communication card (does not include CANopen card)	
	00-31	Operation command source (HAND)	0: Digital keypad 1: External terminals 2: RS-485 communication input 3: CANopen communication card 5: Communication card (does not include CANopen card)	0
✓	00-32	Digital keypad STOP function	0: STOP key disabled 1: STOP key enabled	0
	00-33	RPWM mode selection	0: Disable 1: RPWM mode 1 2: RPWM mode 2 3: RPWM mode 3	0
✓	00-34	RPWM range	0.0–4.0 kHz Pr.00-17 = 4 kHz, 8 kHz: the setting range is 0.0–2.0 kHz Pr.00-17 = 5–7 kHz: the setting range is 0.0–4.0 kHz	0.0
✓	00-37	Over-modulation gain	80–120	100
✓	00-48	Display filter time (current)	0.001–65.535 sec.	0.100
✓	00-49	Display filter time (keypad)	0.001–65.535 sec.	0.100
	00-50	Software version (date)	Read only	Read only

01 Basic Parameters

	Pr.	Parameter Name	Setting Range	Default
✓	01-00	Maximum operation frequency of motor 1	0.00–599.00 Hz	60.00 / 50.00
	01-01	Rated / base frequency of motor 1	0.00–599.00 Hz	60.00 / 50.00
	01-02	Rated / base output voltage of motor 1	230V models: 0.0–255.0 V 460V models: 0.0–510.0 V 575V models: 0.0–637.0 V 690V models: 0.0–765.0 V	200.0 400.0 600.0 660.0
	01-03	Mid-point frequency 1 of motor 1	0.00–599.00 Hz	3.00
✓	01-04	Mid-point voltage 1 of motor 1	230V models: 0.0–240.0 V 460V models: 0.0–480.0 V 575V models: 0.0–637.0 V 690V models: 0.0–720.0 V	11.0 22.0 0.0 0.0
	01-05	Mid-point frequency 2 of motor 1	0.00–599.00 Hz	1.50
✓	01-06	Mid-point voltage 2 of motor 1	230V models: 0.0–240.0 V 460V models: 0.0–480.0 V 575V models: 0.0–637.0 V 690V models: 0.0–720.0 V	5.0 10.0 0.0 0.0
	01-07	Minimum output frequency of motor 1	0.00–599.00 Hz	0.50
✓	01-08	Minimum output voltage of motor 1	230V models: 0.0–240.0 V 460V models: 0.0–480.0 V 575V models: 0.0–637.0 V 690V models: 0.0–720.0 V	1.0 2.0 0.0 0.0
	01-09	Start-up frequency	0.00–599.00 Hz	0.50
✓	01-10	Output frequency upper limit	0.00–599.00 Hz	599.00
✓	01-11	Output frequency lower limit	0.00–599.00 Hz	0
✓	01-12	Acceleration time 1	Pr.01-45=0: 0.00–600.00 sec. Pr.01-45=1: 0.00–6000.0 sec. The default of motor drive with 30HP and above: 60.00 / 60.0	10.00
✓	01-13	Deceleration time 1	Pr.01-45=0: 0.00–600.00 sec. Pr.01-45=1: 0.00–6000.0 sec. The default of motor drive with 30HP and above: 60.00 / 60.0	10.00

	Pr.	Parameter Name	Setting Range	Default
✓	01-14	Acceleration time 2	Pr.01-45=0: 0.00–600.00 sec. Pr.01-45=1: 0.00–6000.0 sec. The default of motor drive with 30HP and above: 60.00 / 60.0	10.00
✓	01-15	Deceleration time 2	Pr.01-45=0: 0.00–600.00 sec. Pr.01-45=1: 0.00–6000.0 sec. The default of motor drive with 30HP and above: 60.00 / 60.0	10.00
✓	01-16	Acceleration time 3	Pr.01-45=0: 0.00–600.00 sec. Pr.01-45=1: 0.00–6000.0 sec. The default of motor drive with 30HP and above: 60.00 / 60.0	10.00
✓	01-17	Deceleration time 3	Pr.01-45=0: 0.00–600.00 sec. Pr.01-45=1: 0.00–6000.0 sec. The default of motor drive with 30HP and above: 60.00 / 60.0	10.00
✓	01-18	Acceleration time 4	Pr.01-45=0: 0.00–600.00 sec. Pr.01-45=1: 0.00–6000.0 sec. The default of motor drive with 30HP and above: 60.00 / 60.0	10.00
✓	01-19	Deceleration time 4	Pr.01-45=0: 0.00–600.00 sec. Pr.01-45=1: 0.00–6000.0 sec. The default of motor drive with 30HP and above: 60.00 / 60.0	10.00
✓	01-20	JOG acceleration time	Pr.01-45=0: 0.00–600.00 sec. Pr.01-45=1: 0.00–6000.0 sec. The default of motor drive with 30HP and above: 60.00 / 60.0	10.00
✓	01-21	JOG deceleration time	Pr.01-45=0: 0.00–600.00 sec. Pr.01-45=1: 0.00–6000.0 sec. The default of motor drive with 30HP and above: 60.00 / 60.0	10.00
✓	01-22	JOG frequency	0.00–599.00 Hz	6.00
✓	01-23	Switch frequency between first and fourth Accel./Decel.	0.00–599.00 Hz	0.00
✓	01-24	S-curve for acceleration begin time 1	Pr.01-45=0: 0.00–25.00 sec. Pr.01-45=1: 0.0–250.0 sec.	0.20
✓	01-25	S-curve for acceleration arrival time 2	Pr.01-45=0: 0.00–25.00 sec. Pr.01-45=1: 0.0–250.0 sec.	0.20
✓	01-26	S-curve for deceleration begin time 1	Pr.01-45=0: 0.00–25.00 sec. Pr.01-45=1: 0.0–250.0 sec.	0.20

	Pr.	Parameter Name	Setting Range	Default
✓	01-27	S-curve for deceleration arrival time 2	Pr.01-45=0: 0.00–25.00 sec. Pr.01-45=1: 0.0–250.0 sec.	0.20
	01-28	Skip frequency 1 (upper limit)	0.00–599.00 Hz	0.00
	01-29	Skip frequency 1 (lower limit)	0.00–599.00 Hz	0.00
	01-30	Skip frequency 2 (upper limit)	0.00–599.00 Hz	0.00
	01-31	Skip frequency 2 (lower limit)	0.00–599.00 Hz	0.00
	01-32	Skip frequency 3 (upper limit)	0.00–599.00 Hz	0.00
	01-33	Skip frequency 3 (lower limit)	0.00–599.00 Hz	0.00
	01-34	Zero-speed mode	0: Output waiting 1: Zero-speed operation 2: Minimum frequency (Refer to Pr.01-07 and Pr.01-41)	0
	01-35	Rated / base frequency of motor 2	0.00–599.00 Hz	60.00 / 50.00
	01-36	Rated / base output voltage of motor 2	230V models: 0.0–255.0 V 460V models: 0.0–510.0 V 575V models: 0.0–637.0 V 690V models: 0.0–765.0 V	200.0 400.0 600.0 660.0
	01-37	Mid-point frequency 1 of motor 2	0.00–599.00 Hz	3.00
✓	01-38	Mid-point voltage 1 of motor 2	230V models: 0.0–240.0 V 460V models: 0.0–480.0 V 575V models: 0.0–637.0 V 690V models: 0.0–720.0 V	11.0 22.0 0.0 0.0
	01-39	Mid-point frequency 2 of motor 2	0.00–599.00 Hz	1.50
✓	01-40	Mid-point voltage 2 of motor 2	230V models: 0.0–240.0 V 460V models: 0.0–480.0 V 575V models: 0.0–637.0 V 690V models: 0.0–720.0 V	5.0 10.0 0.0 0.0
	01-41	Minimum output frequency of motor 2	0.00–599.00 Hz	0.50
✓	01-42	Minimum output voltage of motor 2	230V models: 0.0–240.0 V 460V models: 0.0–480.0 V 575V models: 0.0–637.0 V 690V models: 0.0–720.0 V	1.0 2.0 0.0 0.0
	01-43	V/F curve selection	0: V/F curve determined by Pr.01-00–01-08 1: V/F curve to the power of 1.5 2: V/F curve to the power of 2 3: 60Hz, voltage saturation in 50Hz 4: 72Hz, voltage saturation in 60Hz	0

	Pr.	Parameter Name	Setting Range	Default
			5: 50Hz, decrease gradually with cube 6: 50Hz, decrease gradually with square 7: 60Hz, decrease gradually with cube 8: 60Hz, decrease gradually with square 9: 50Hz, medium starting torque 10: 50Hz, high starting torque 11: 60Hz, medium starting torque 12: 60Hz, high starting torque 13: 90Hz, voltage saturation in 60Hz 14: 120Hz, voltage saturation in 60Hz 15: 180Hz, voltage saturation in 60Hz	
✓	01-44	Auto-acceleration and auto-deceleration setting	0: Linear acceleration and deceleration 1: Auto-acceleration and linear deceleration 2: Linear acceleration and auto-deceleration 3: Auto-acceleration and auto-deceleration 4: Stall prevention by auto-acceleration and auto-deceleration (limited by Pr.01-12–Pr.01-21)	0
	01-45	Time unit for acceleration / deceleration and S-curve	0: Unit: 0.01 sec. 1: Unit: 0.1 sec.	0
✓	01-46	CANopen quick stop time	Pr.01-45=0: 0.00–600.00 sec. Pr.01-45=1: 0.0–6000.0 sec.	1.00
	01-49	Deceleration method selection	0: Normal deceleration 1: Over-voltage energy restriction 2: Traction energy control (TEC) 3: Electromagnetic energy traction control	0
✓	01-50	Electromagnetic traction energy consumption coefficient	0.00–5.00 Hz	0.50
✓	01-51	Flux-weakening overload stall prevention time	0.00–600.00 sec.	1.00

02 Digital Input / Output Parameters

Pr.	Parameter Name	Setting Range	Default
02-00	Two-wire / three-wire operation control	0: Two-wire mode 1, power on for operation control 1: Two-wire mode 2, power on for operation control 2: Three-wire, power on for operation control 7: Single-wire mode, the Servo ON terminal under position control mode (only the FWD terminal is valid)	0
02-01	Multi-function input command 1 (MI1)	0: No function 1: Multi-step speed command 1 / P2P position command 1 2: Multi-step speed command 2 / P2P position command 2 3: Multi-step speed command 3 / P2P position command 3 4: Multi-step speed command 4 / P2P position command 4 5: Reset 6: JOG operation (by external control or KPC-CC01) 7: Acceleration / deceleration speed inhibit 8: 1st and 2nd acceleration / deceleration time selection 9: 3rd and 4th acceleration / deceleration time selection 10: External Fault (EF) input (Pr.07-20) 11: Base Block (B.B) input from external 12: Output voltage stops 13: Cancel the setting of auto-acceleration / auto-deceleration time 14: Switch between motor 1 and motor 2 15: Rotating speed command from AVI 16: Rotating speed command from ACI 17: Rotating speed command from AUI 18: Forced to stop (Pr.07-20) 19: Frequency up command 20: Frequency down command 21: PID function disabled 22: Clear the counter 23: Input the counter value (MI6)	1
02-02	Multi-function input command 2 (MI2)		2
02-03	Multi-function input command 3 (MI3)		3
02-04	Multi-function input command 4 (MI4)		4
02-05	Multi-function input command 5 (MI5)		0
02-06	Multi-function input command 6 (MI6)		0
02-07	Multi-function input command 7 (MI7)		0
02-08	Multi-function input command 8 (MI8)		0
02-26	Input terminal of I/O extension card (MI10)		0
02-27	Input terminal of I/O extension card (MI11)		0
02-28	Input terminal of I/O extension card (MI12)		0
02-29	Input terminal of I/O extension card (MI13)		0
02-30	Input terminal of I/O extension card (MI14)		0
02-31	Input terminal of I/O extension card (MI15)		0

Pr.	Parameter Name	Setting Range	Default
		24: FWD JOG command 25: REV JOG command 26: TQC / FOC mode selection 27: ASR1 / ASR2 selection 28: Emergency stop (EF1) 29: Signal confirmation for Y-connection 30: Signal confirmation for Δ-connection 31: High torque bias (Pr.11-30) 32: Middle torque bias (Pr.11-31) 33: Low torque bias (Pr.11-32) 35: Enable single-point positioning 36: Enable P2P position teaching function– 37: Enable pulse-train position command position control 38: Disable write EEPROM function 39: Torque command direction 40: Force coasting to stop 41: HAND switch 42: AUTO switch 43: Enable resolution selection (Pr.02-48) 44: Negative limit switch (NL) 45: Positive limit switch (PL) 46: Homing (ORG) 47: Enable homing function 48: Mechanical gear ratio switch 49: Enable drive 50: Slave dEb action to execute 51: Selection for PLC mode bit 0 52: Selection for PLC mode bit 1 53: Trigger CANopen quick stop 55: Brake release 56: Local / Remote selection 88: P2P position command confirm 89: Speed / position control mode switch 0: Speed control mode 1: Position control mode 90: Position command source switch 0: Inputs from internal register 1: Inputs from external pulse	

	Pr.	Parameter Name	Setting Range	Default
✓	02-09	UP / DOWN key mode	0: UP / DOWN by the acceleration / deceleration time 1: UP / DOWN constant speed (Pr.02-10)	0
✓	02-10	Constant speed, acceleration / deceleration speed of the UP / DOWN key	0.001–1.000 Hz / ms	0.001
✓	02-11	Multi-function input response time	0.000–30.000 sec.	0.005
✓	02-12	Multi-function input mode selection	0000h–FFFFh (0: N.O.; 1: N.C.)	0000h
✓	02-13	Multi-function output 1 (Relay1)	0: No function 1: Indication during RUN 2: Operation speed reached 3: Desired frequency reached 1 (Pr.02-22) 4: Desired frequency reached 2 (Pr.02-24) 5: Zero speed (Frequency command) 6: Zero speed including STOP (Frequency command) 7: Over-torque 1 (Pr.06-06–06-08) 8: Over-torque 2 (Pr.06-09–06-11) 9: Drive is ready 10: Low voltage warning (Lv) (Pr.06-00) 11: Malfunction indication 12: Mechanical brake release (Pr.02-32) 13: Overheat warning (Pr.06-15) 14: Software brake signal indication (Pr.07-00) 15: PID feedback error (Pr.08-13, Pr.08-14) 16: Slip error (oSL) 17: Count value reached, does not return to 0 (Pr.02-20) 18: Count value reached, returns to 0 (Pr.02-19) 19: External interrupt B.B. input (Base Block) 20: Warning output 21: Over-voltage 22: Over-current stall prevention 23: Over-voltage stall prevention 24: Operation source 25: Forward command 26: Reverse command 27: Output when current ≥ Pr.02-33 28: Output when current < Pr.02-33	11
✓	02-14	Multi-function output 2 (Relay2)		1
✓	02-16	Multi-function output 3 (MO1)		66
✓	02-17	Multi-function output 4 (MO2)		0
✓	02-36	Output terminal of I/O extension card (MO10) or (RA10)		0
✓	02-37	Output terminal of I/O extension card (MO11) or (RA11)		0
✓	02-38	Output terminal of I/O extension card (RA12)		0
✓	02-39	Output terminal of I/O extension card (RA13)		0
✓	02-40	Output terminal of I/O extension card (RA14)		0
✓	02-41	Output terminal of I/O extension card (RA15)		0
✓	02-42	Output terminal of I/O extension card (MO16 virtual terminal)		0
✓	02-43	Output terminal of I/O extension card (MO17 virtual terminal)		0
✓	02-44	Output terminal of I/O extension card (MO18 virtual terminal)		0
✓	02-45	Output terminal of I/O extension card (MO19 virtual terminal)		0
✓	02-46	Output terminal of I/O extension card (MO20 virtual terminal)		0

	Pr.	Parameter Name	Setting Range	Default
			29: Output when frequency ≥ Pr.02-34 30: Output when frequency < Pr.02-34 31: Y-connection for the motor coil 32: Δ-connection for the motor coil 33: Zero speed (actual output frequency) 34: Zero speed including stop (actual output frequency) 35: Error output selection 1 (Pr.06-23) 36: Error output selection 2 (Pr.06-24) 37: Error output selection 3 (Pr.06-25) 38: Error output selection 4 (Pr.06-26) 39: Position reached (Pr.11-65, Pr.11-66) 40: Speed reached (including stop) 42: Crane function 43: Motor actual speed detection 44: Low current output (use with Pr.06-71–06-73) 45: UVW output electromagnetic valve switch 46: Master dEb output 47: Closed brake output 49: Homing action completed ~~output~~ 50: Output control for CANopen 51: Analog output control for RS-485 interface (InnerCOM / Modbus) 52: Output control for communication cards 65: Output control for both CAN & 485 66: SO output logic A 67: Analog input level reached 68: SO output logic B 70: FAN warning output 75: Forward running status 76: Reverse running status	
✓	02-18	Multi-function output direction	0000h–FFFFh (0: N.O.; 1: N.C.)	0000h
✓	02-19	Terminal counting value reached (returns to 0)	0–65500	0
✓	02-20	Preliminary counting value reached (does not return to 0)	0–65500	0
✓	02-21	Digital output gain (DFM)	1–166	1
✓	02-22	Desired frequency reached 1	0.00–599.00 Hz	60.00 / 50.00

	Pr.	Parameter Name	Setting Range	Default
✓	02-23	The width of the desired frequency reached 1	0.00–599.00 Hz	2.00
✓	02-24	Desired frequency reached 2	0.00–599.00 Hz	60.00 / 50.00
✓	02-25	The width of the desired frequency reached 2	0.00–599.00 Hz	2.00
	02-32	Brake delay time	0.000–65.000 sec.	0.000
✓	02-33	Output current level setting for multi-function output terminal	0–100%	0
✓	02-34	Output frequency setting for multi-function output terminal	0.00–599.00 Hz (Motor speed when using PG Card)	3.00
✓	02-35	External operation control selection after reset and reboot	0: Disable 1: Drive runs if the RUN command remains after reset or reboot	0
✓	02-47	Motor zero-speed level	0–65535 rpm	0
✓	02-48	Maximum frequency of resolution switch	0.00–599.00 Hz	60.00
✓	02-49	Switch delay time of maximum output frequency	0.000–65.000 sec.	0.000
	02-50	Display the status of multi-function input terminal	Monitor the status of multi-function input terminals	Read only
	02-51	Display the status of multi-function output terminal	Monitor the status of multi-function output terminals	Read only
	02-52	Display the external multi-function input terminals used by PLC	Monitor the status of PLC input terminals	Read only
	02-53	Display the external multi-function output terminals used by PLC	Monitor the status of PLC output terminals	Read only
	02-54	Display the frequency command executed by external terminal	0.00–599.00 Hz (Read only)	Read only
	02-56	Brake release check time	0.000–65.000 sec.	0.000
✓	02-57	Multi-function output terminal (function 42): brake current check point	0–100%	0
✓	02-58	Multi-function output terminal (function 42): brake frequency check point	0.00–599.00 Hz	0.00
	02-63	Frequency reached detection amplitude	0.00–599.00 Hz	0.00
	02-70	IO card types	1: EMC-BPS01 4: EMC-D611A	Read only

Pr.	Parameter Name	Setting Range	Default
		5: EMC-D42A 6: EMC-R6AA 11: EMC-A22A	
02-71	DFM output selection	0: Use frequency with speed control as DFM output frequency 1: Use frequency with system acceleration / deceleration as DFM output frequency	0
02-74	Internal / external multi-function input terminal selection	0000–FFFFh	0000h
02-75	Internal multi-function output terminal selection	0000–FFFFh	0000h

03 Analog Input / Output Parameters

	Pr.	Parameter Name	Setting Range	Default
✓	03-00	AVI analog input selection	0: No function 1: Frequency command (speed limit under torque control mode) 2: Torque command (torque limit under speed control mode) 3: Torque compensation command 4: PID target value 5: PID feedback signal 6: Thermistor (PTC / KTY-84) input value 7: Positive torque limit 8: Negative torque limit 9: Regenerative torque limit 10: Positive / negative torque limit 11: PT100 thermistor input value 13: PID compensation value	1
✓	03-01	ACI analog input selection		0
✓	03-02	AUI Analog input selection		0
✓	03-03	AVI analog input bias	-100.0–100.0%	0.0
✓	03-04	ACI analog input bias	-100.0–100.0%	0.0
✓	03-05	AUI analog input bias	-100.0–100.0%	0.0
✓	03-07	AVI positive / negative bias mode	0: No bias 1: Lower than or equal to bias 2: Greater than or equal to bias 3: The absolute value of the bias voltage while serving as the center 4: Bias serves as the center	0
✓	03-08	ACI positive / negative bias mode		
✓	03-09	AUI positive / negative bias mode		
	03-10	Reverse setting when analog signal input is negative frequency	0: Negative frequency input is not allowed. The digital keypad or external terminal controls the forward and reverse direction. 1: Negative frequency is **allowed**. Positive frequency = run in a forward direction; Negative frequency = run in a reverse direction. The digital keypad or external terminal control cannot change the running direction.	0
✓	03-11	AVI analog input gain	-500.0–500.0%	100.0
✓	03-12	ACI analog input gain	-500.0–500.0%	100.0
✓	03-13	AUI analog positive input gain	-500.0–500.0%	100.0
✓	03-14	AUI analog negative input gain	-500.0–500.0%	100.0
✓	03-15	AVI analog input filter time	0.00–20.00 sec.	0.01
✓	03-16	ACI analog input filter time	0.00–20.00 sec.	0.01

	Pr.	Parameter Name	Setting Range	Default
✓	03-17	AUI analog input filter time	0.00–20.00 sec.	0.01
✓	03-18	Analog input addition function	0: Disable (AVI, ACI, AUI) 1: Enable	0
	03-19	Signal loss selection for the analog input 4–20 mA	0: Disable 1: Continue operation at the last frequency 2: Decelerate to 0 Hz 3: Stop immediately and display ACE	0
✓	03-20	AFM1 Multi-function output 1	0: Output frequency (Hz) 1: Frequency command (Hz) 2: Motor speed (Hz) 3: Output current (rms) 4: Output voltage 5: DC bus voltage 6: Power factor 7: Power 8: Output torque 9: AVI 10: ACI 11: AUI 12: Iq current command 13: Iq feedback value 14: Id current command 15: Id feedback value 18: Torque command 19: PG2 frequency command 20: CANopen analog output 21: RS-485 analog output 22: Communication card analog output 23: Constant voltage output 25: CANopen and RS-485 analog output	0
✓	03-23	AFM2 Multi-function output 2		0
✓	03-21	AFM1 Analog output gain 1	0.0–500.0%	100.0
✓	03-22	AFM1 Analog output 1 in REV direction	0: Absolute value in output voltage 1: Reverse output 0 V; forward output 0–10 V 2: Reverse output 5–0 V; forward output 5–10 V	0
✓	03-24	AFM2 Analog output gain 2	0.0–500.0%	100.0
✓	03-25	AFM2 Analog output 2 in REV direction	0: Absolute value in output voltage 1: Reverse output 0 V; forward output 0–10 V 2: Reverse output 5–0 V; forward output 5–10 V	0
✓	03-27	AFM2 output bias	-100.00–100.00%	0.00
✓	03-28	AVI terminal input selection	0: 0–10 V 1: 0–20 mA 2: 4–20 mA	0

	Pr.	Parameter Name	Setting Range	Default
✓	03-29	ACI terminal input selection	0: 4–20 mA 1: 0–10 V 2: 0–20 mA	0
	03-30	PLC analog output terminal status	Monitor the status of the PLC analog output terminals	Read only
✓	03-31	AFM2 output selection	0: 0–20 mA output 1: 4–20 mA output	0
✓	03-32	AFM1 DC output setting level	0.00–100.00%	0.00
✓	03-33	AFM2 DC output setting level	0.00–100.00%	0.00
✓	03-35	AFM1 output filter time	0.00–20.00 sec.	0.01
✓	03-36	AFM2 output filter time	0.00–20.00 sec.	0.01
✓	03-44	Multi-function output (MO) by AI level source	0: AVI 1: ACI 2: AUI	0
✓	03-45	AI upper level (MO)	-100.00–100.00%	50.00
✓	03-46	AI lower level (MO)	-100.00–100.00%	10.00
✓	03-50	Analog input curve selection	0: Normal curve 1: Three-point curve of AVI 2: Three-point curve of ACI 3: Three-point curve of AVI & ACI 4: Three-point curve of AUI 5: Three-point curve of AVI & AUI 6: Three-point curve of ACI & AUI 7: Three-point curve of AVI & ACI & AUI	0
✓	03-51	AVI lowest point	Pr.03-28=0, 0.00–10.00 V Pr.03-28=1, 0.00–20.00 mA Pr.03-28=2, 4.00–20.00 mA	0.00 0.00 4.00
✓	03-52	AVI proportional lowest point	-100.00–100.00%	0.00
✓	03-53	AVI mid-point	Pr.03-28=0, 0.00–10.00 V Pr.03-28=1, 0.00–20.00 mA Pr.03-28=2, 4.00–20.00 mA	5.00 10.00 12.00
✓	03-54	AVI proportional mid-point	-100.00–100.00%	50.00
✓	03-55	AVI highest point	Pr.03-28=0, 0.00–10.00 V Pr.03-28=1, 0.00–20.00 mA Pr.03-28=2, 4.00–20.00 mA	10.00 20.00 20.00
✓	03-56	AVI proportional highest point	-100.00–100.00%	100.00
✓	03-57	ACI lowest point	Pr.03-29=0, 4.00–20.00 mA Pr.03-29=1, 0.00–10.00 V Pr.03-29=2, 0.00–20.00 mA	4.00 0.00 0.00
✓	03-58	ACI proportional lowest point	-100.00–100.00%	0.00

	Pr.	Parameter Name	Setting Range	Default
✓	03-59	ACI mid-point	Pr.03-29=0, 4.00–20.00 mA Pr.03-29=1, 0.00–10.00 V Pr.03-29=2, 0.00–20.00 mA	12.00 5.00 10.00
✓	03-60	ACI proportional mid-point	-100.00–100.00%	50.00
✓	03-61	ACI highest point	Pr.03-29=0, 4.00–20.00 mA Pr.03-29=1, 0.00–10.00 V Pr.03-29=2, 0.00–20.00 mA	20.00 10.00 20.00
✓	03-62	ACI proportional highest point	-100.00–100.00%	100.00
✓	03-63	Positive AUI voltage lowest point	0.00–10.00 V	0.00
✓	03-64	Positive AUI voltage proportional lowest point	-100.00–100.00%	0.00
✓	03-65	Positive AUI voltage mid-point	0.00–10.00 V	5.00
✓	03-66	Positive AUI voltage proportional mid-point	-100.00–100.00%	50.00
✓	03-67	Positive AUI voltage highest point	0.00–10.00 V	10.00
✓	03-68	Positive AUI voltage proportional highest point	-100.00–100.00%	100.00
✓	03-69	Negative AUI voltage highest point	-10.00–0.00 V	0.00
✓	03-70	Negative AUI voltage proportional highest point	-100.00–100.00%	0.00
✓	03-71	Negative AUI voltage mid-point	-10.00–0.00 V	-5.00
✓	03-72	Negative AUI voltage proportional mid-point	-100.00–100.00%	-50.00
✓	03-73	Negative AUI voltage lowest point	-10.00–0.00 V	-10.00
✓	03-74	Negative AUI voltage proportional lowest point	-100.00–100.00%	-100.00

04 Multi-step Speed Parameters

	Pr.	Parameter Name	Setting Range	Default
✓	04-00	1st step speed frequency	0.00–599.00 Hz	0.00
✓	04-01	2nd step speed frequency	0.00–599.00Hz	0.00
✓	04-02	3rd step speed frequency	0.00–599.00 Hz	0.00
✓	04-03	4th step speed frequency	0.00–599.00 Hz	0.00
✓	04-04	5th step speed frequency	0.00–599.00 Hz	0.00
✓	04-05	6th step speed frequency	0.00–599.00 Hz	0.00
✓	04-06	7th step speed frequency	0.00–599.00 Hz	0.00
✓	04-07	8th step speed frequency	0.00–599.00 Hz	0.00
✓	04-08	9th step speed frequency	0.00–599.00 Hz	0.00
✓	04-09	10th step speed frequency	0.00–599.00 Hz	0.00
✓	04-10	11th step speed frequency	0.00–599.00 Hz	0.00
✓	04-11	12th step speed frequency	0.00–599.00 Hz	0.00
✓	04-12	13th step speed frequency	0.00–599.00 Hz	0.00
✓	04-13	14th step speed frequency	0.00–599.00 Hz	0.00
✓	04-14	15th step speed frequency	0.00–599.00 Hz	0.00
✓	04-15	Position command 1 (rotation)	-30000–30000	0
✓	04-16	Position command 1 (pulse)	-32767–32767	0
✓	04-17	Position command 2 (rotation)	-30000–30000	0
✓	04-18	Position command 2 (pulse)	-32767–32767	0
✓	04-19	Position command 3 (rotation)	-30000–30000	0
✓	04-20	Position command 3 (pulse)	-32767–32767	0
✓	04-21	Position command 4 (rotation)	-30000–30000	0
✓	04-22	Position command 4 (pulse)	-32767–32767	0
✓	04-23	Position command 5 (rotation)	-30000–30000	0
✓	04-24	Position command 5 (pulse)	-32767–32767	0
✓	04-25	Position command 6 (rotation)	-30000–30000	0
✓	04-26	Position command 6 (pulse)	-32767–32767	0
✓	04-27	Position command 7 (rotation)	-30000–30000	0
✓	04-28	Position command 7 (pulse)	-32767–32767	0
✓	04-29	Position command 8 (rotation)	-30000–30000	0
✓	04-30	Position command 8 (pulse)	-32767–32767	0
✓	04-31	Position command 9 (rotation)	-30000–30000	0
✓	04-32	Position command 9 (pulse)	-32767–32767	0
✓	04-33	Position command 10 (rotation)	-30000–30000	0
✓	04-34	Position command 10 (pulse)	-32767–32767	0
✓	04-35	Position command 11 (rotation)	-30000–30000	0
✓	04-36	Position command 11 (pulse)	-32767–32767	0

	Pr.	Parameter Name	Setting Range	Default
✓	04-37	Position command 12 (rotation)	-30000–30000	0
✓	04-38	Position command 12 (pulse)	-32767–32767	0
✓	04-39	Position command 13 (rotation)	-30000–30000	0
✓	04-40	Position command 13 (pulse)	-32767–32767	0
✓	04-41	Position command 14 (rotation)	-30000–30000	0
✓	04-42	Position command 14 (pulse)	-32767–32767	0
✓	04-43	Position command 15 (rotation)	-30000–30000	0
✓	04-44	Position command 15 (pulse)	-32767–32767	0
✓	04-50	PLC buffer 0	0–65535	0
✓	04-51	PLC buffer 1	0–65535	0
✓	04-52	PLC buffer 2	0–65535	0
✓	04-53	PLC buffer 3	0–65535	0
✓	04-54	PLC buffer 4	0–65535	0
✓	04-55	PLC buffer 5	0–65535	0
✓	04-56	PLC buffer 6	0–65535	0
✓	04-57	PLC buffer 7	0–65535	0
✓	04-58	PLC buffer 8	0–65535	0
✓	04-59	PLC buffer 9	0–65535	0
✓	04-60	PLC buffer 10	0–65535	0
✓	04-61	PLC buffer 11	0–65535	0
✓	04-62	PLC buffer 12	0–65535	0
✓	04-63	PLC buffer 13	0–65535	0
✓	04-64	PLC buffer 14	0–65535	0
✓	04-65	PLC buffer 15	0–65535	0
✓	04-66	PLC buffer 16	0–65535	0
✓	04-67	PLC buffer 17	0–65535	0
✓	04-68	PLC buffer 18	0–65535	0
✓	04-69	PLC buffer 19	0–65535	0
✓	04-70	PLC Application parameter 0	0–65535	0
✓	04-71	PLC Application parameter 1	0–65535	0
✓	04-72	PLC Application parameter 2	0–65535	0
✓	04-73	PLC Application parameter 3	0–65535	0
✓	04-74	PLC Application parameter 4	0–65535	0
✓	04-75	PLC Application parameter 5	0–65535	0
✓	04-76	PLC Application parameter 6	0–65535	0
✓	04-77	PLC Application parameter 7	0–65535	0
✓	04-78	PLC Application parameter 8	0–65535	0
✓	04-79	PLC Application parameter 9	0–65535	0
✓	04-80	PLC Application parameter 10	0–65535	0

	Pr.	Parameter Name	Setting Range	Default
✓	04-81	PLC Application parameter 11	0–65535	0
✓	04-82	PLC Application parameter 12	0–65535	0
✓	04-83	PLC Application parameter 13	0–65535	0
✓	04-84	PLC Application parameter 14	0–65535	0
✓	04-85	PLC Application parameter 15	0–65535	0
✓	04-86	PLC Application parameter 16	0–65535	0
✓	04-87	PLC Application parameter 17	0–65535	0
✓	04-88	PLC Application parameter 18	0–65535	0
✓	04-89	PLC Application parameter 19	0–65535	0
✓	04-90	PLC Application parameter 20	0–65535	0
✓	04-91	PLC Application parameter 21	0–65535	0
✓	04-92	PLC Application parameter 22	0–65535	0
✓	04-93	PLC Application parameter 23	0–65535	0
✓	04-94	PLC Application parameter 24	0–65535	0
✓	04-95	PLC Application parameter 25	0–65535	0
✓	04-96	PLC Application parameter 26	0–65535	0
✓	04-97	PLC Application parameter 27	0–65535	0
✓	04-98	PLC Application parameter 28	0–65535	0
✓	04-99	PLC Application parameter 29	0–65535	0

05 Motor Parameters

	Pr.	Parameter Name	Setting Range	Default
	05-00	Motor parameter auto-tuning	0: No function 1: Simple rolling auto-tuning for induction motor (IM) 2: Static auto-tuning for induction motor (IM) 4: Dynamic test for PM magnetic pole (with the running in forward direction) 5: Rolling auto-tuning for PM (IPM / SPM) 6: Advanced rolling auto-tuning for IM motor flux curve 11: SynRM parameter auto-tuning 12: FOC sensorless inertia estimation 13: Static auto-tuning for PM	0
	05-01	Full-load current for induction motor 1 (A)	Depending on the model power	Depending on the model power
✓	05-02	Rated power for induction motor 1 (kW)	0.00–655.35 kW	Depending on the model power
✓	05-03	Rated speed for induction motor 1 (rpm)	0–xxxx rpm (Depending on the motor's number of poles)	Depending on the motor's number of poles
	05-04	Number of poles for induction motor 1	2–64	4
	05-05	No-load current for induction motor 1 (A)	0.00–Pr.05-01 default	Depending on the model power
	05-06	Stator resistance (Rs) for induction motor 1	0.000–65.535 Ω	Depending on the model power
	05-07	Rotor resistance (Rr) for induction motor 1	0.000–65.535 Ω	0.000
	05-08	Magnetizing inductance (Lm) for induction motor 1	0.0–6553.5 mH	0.0
	05-09	Stator inductance (Lx) for induction motor 1	0.0–6553.5 mH	0.0
	05-13	Full-load current for induction motor 2 (A)	Depending on the model power	Depending on the model power
✓	05-14	Rated power for induction motor 2 (kW)	0.00–655.35 kW	Depending on the model power
✓	05-15	Rated speed for induction motor 2 (rpm)	0–xxxx rpm (Depending on the motor's number of poles)	Depending on the motor's number of poles
	05-16	Number of poles for induction motor 2	2–64	4

	Pr.	Parameter Name	Setting Range	Default
	05-17	No-load current for induction motor 2 (A)	0.00–Pr.05-13 default	Depending on the model power
	05-18	Stator resistance (Rs) for induction motor 2	0.000–65.535 Ω	Depending on the model power
	05-19	Rotor resistance (Rr) for induction motor 2	0.000–65.535 Ω	0.000
	05-20	Magnetizing inductance (Lm) for induction motor 2	0.0–6553.5 mH	0.0
	05-21	Stator inductance (Lx) for induction motor 2	0.0–6553.5 mH	0.0
	05-22	Induction motor 1 / 2 selection	1: Motor 1 2: Motor 2	1
✓	05-23	Frequency for Y-connection / Δ-connection switch for an induction motor	0.00–599.00 Hz	60.00
	05-24	Y-connection / Δ-connection switch for an induction motor	0: Disable 1: Enable	0
✓	05-25	Delay time for Y-connection / Δ-connection switch for an induction motor	0.000–60.000 sec.	0.200
	05-28	Accumulated Watt-hour for a motor (W-hour)	0.0–6553.5	Read only
	05-29	Accumulated Watt-hour for a motor in low word (kW-hour)	0.0–6553.5	Read only
	05-30	Accumulated Watt-hour for a motor in high word (MW-hour)	0–65535	Read only
	05-31	Accumulated motor operation time (minutes)	0–1439	0
	05-32	Accumulated motor operation time (days)	0–65535	0
	05-33	Induction motor (IM) or permanent magnet synchronous AC motor (PM) selection	0: IM 1: SPM 2: IPM 3: SynRM	0
	05-34	Full-load current for a permanent magnet synchronous AC motor / reluctance motor	Depending on the model power	Depending on the model power
✓	05-35	Rated power for a permanent magnet synchronous AC motor / reluctance motor	0.00–655.35 kW	Depending on the model power

	Pr.	Parameter Name	Setting Range	Default
✓	05-36	Rated speed for a permanent magnet synchronous AC motor / reluctance motor	0–65535 rpm	2000
	05-37	Number of poles for a permanent magnet synchronous AC motor / reluctance motor	0–65535	10
	05-38	System inertia for a permanent magnet synchronous AC motor / reluctance motor	0.0–6553.5 kg-cm^2	Depending on the motor power
	05-39	Stator resistance for a permanent magnet synchronous AC motor / reluctance motor	0.000–65.535 Ω	0.000
	05-40	Permanent magnet synchronous AC motor / reluctance motor Ld	0.00–655.35 mH	0.00
	05-41	Permanent magnet synchronous AC motor / reluctance motor Lq	0.00–655.35 mH	0.00
✓	05-42	PG offset angle for a permanent magnet synchronous AC motor / reluctance motor	0.0–360.0°	0.0
✓	05-43	Ke parameter of a permanent magnet synchronous AC motor / reluctance motor	0–65535 (Unit: V / krpm)	0

06 Protection Parameters

	Pr.	Parameter Name	Setting Range	Default
✓	06-00	Low voltage level	230V models: Frame A–D: 150.0–220.0 V_{DC} Frame E and above: 190.0–220.0 V_{DC} 460V models: Frame A–D: 300.0–440.0 V_{DC} Frame E and above: 380.0–440.0 V_{DC} 575V models: 420.0–520.0 V_{DC} 690V models: 450.0–660.0 V_{DC}	 180.0 200.0 360.0 400.0 470.0 480.0
✓	06-01	Over-voltage stall prevention	0: Disabled 230V models: 0.0–450.0 V_{DC} 460V models: 0.0–900.0 V_{DC} 575V models: 0.0–920.0 V_{DC} 690V models: 0.0–1087.0 V_{DC}	 380.0 760.0 920.0 1087.0
✓	06-02	Selection for over-voltage stall prevention	0: Traditional over-voltage stall prevention 1: Smart over-voltage stall prevention	0
✓	06-03	Over-current stall prevention during acceleration	230V / 460V models Heavy load: 0–195% (100% corresponds to the rated current of the drive) Super Heavy load: 0–210% (100% corresponds to the rated current of the drive) 575V / 690V models Light load: 0–125% (100% corresponds to the rated current of the drive) Normal load: 0–150% (100% corresponds to the rated current of the drive) Heavy load: 0–180% (100% corresponds to the rated current of the drive)	 150 150 120 120 150
✓	06-04	Over-current stall prevention during operation	230V / 460V models Heavy load: 0–195% (100% corresponds to the rated current of the drive) Super Heavy load: 0–210% (100% corresponds to the rated current of the drive) 575V / 690V models Light load: 0–125% (100% corresponds to the rated current of the drive) Normal load: 0–150% (100% corresponds to the rated current of the drive) Heavy load: 0–180% (100% corresponds to the rated current of the drive)	 150 150 120 120 150

	Pr.	Parameter Name	Setting Range	Default
✓	06-05	Acceleration / deceleration time selection for stall prevention at constant speed	0: By current acceleration / deceleration time 1: By the first acceleration / deceleration time 2: By the second acceleration / deceleration time 3: By the third acceleration / deceleration time 4: By the fourth acceleration / deceleration time 5: By Auto-acceleration / auto-deceleration	0
✓	06-06	Over-torque detection selection (OT1)	0: No function 1: Continue operation after over-torque detection during constant speed operation 2: Stop after over-torque detection during constant speed operation 3: Continue operation after over-torque detection during RUN 4: Stop after over-torque detection during RUN	0
✓	06-07	Over-torque detection level (OT1)	10–250% (100% corresponds to the rated current of the drive)	120
✓	06-08	Over-torque detection time (OT1)	0.0–60.0 sec.	0.1
✓	06-09	Over-torque detection selection (OT2)	0: No function 1: Continue operation after over-torque detection during constant speed operation 2: Stop after over-torque detection during constant speed operation 3: Continue operation after over-torque detection during RUN 4: Stop after Over-torque detection during RUN	0
✓	06-10	Over-torque detection level (OT2)	10–250% (100% corresponds to the rated current of the drive)	120
✓	06-11	Over-torque detection time (OT2)	0.0–60.0 sec.	0.1
	06-12	Current limit	230V / 460V models: 0–195% (100% corresponds to the rated current of the drive) 575V / 690V models: 0–250% (100% corresponds to the rated current of the drive)	190 170
✓	06-13	Electronic thermal relay selection 1 (motor 1)	0: Inverter motor (with external forced cooling) 1: Standard motor (motor with fan on the shaft) 2: Disable	2
✓	06-14	Electronic thermal relay action time 1 (motor 1)	30.0–600.0 sec.	60.0
✓	06-15	Temperature level overheat (OH) warning	0.0–110.0°C	105.0

Pr.	Parameter Name	Setting Range	Default
↗ 06-16	Stall prevention limit level (Weak magnetic field current stall prevention level)	230V / 460V models: 0–100% (refer to Pr.06-03) 575V / 690V models: 0–100% (refer to Pr.06-03)	100 50
06-17	Fault record 1	0: No fault record 1: Over-current during acceleration (ocA) 2: Over-current during deceleration (ocd) 3: Over-current during steady operation (ocn) 4: Ground fault (GFF) 5: IGBT short-circuit between upper bridge and lower bridge (occ) 6: Over-current at stop (ocS) 7: Over-voltage during acceleration (ovA) 8: Over-voltage during deceleration (ovd) 9: Over-voltage at constant speed (ovn) 10: Over-voltage at stop (ovS) 11: Low-voltage during acceleration (LvA) 12: Low-voltage during deceleration (Lvd) 13: Low-voltage at constant speed (Lvn) 14: Low-voltage at stop (LvS) 15: Phase loss protection (OrP) 16: IGBT overheating (oH1) 17: Heatsink overheating (oH2) 18: IGBT temperature detection failure (tH1o) 19: Capacitor hardware error (tH2o) 21: Over load (oL) 22: Electronic thermal relay 1 protection (EoL1) 23: Electronic thermal relay 2 protection (EoL2) 24: Motor overheating (oH3) (PTC / PT100) 26: Over torque 1 (ot1) 27: Over torque 2 (ot2) 28: Under current (uC) 29: Limit error (LiT) 30: EEPROM write error (cF1) 31: EEPROM read error (cF2) 33: U-phase error (cd1) 34: V-phase error (cd2) 35: W-phase error (cd3) 36: cc (current clamp) hardware error (Hd0) 37: oc (over-current) hardware error (Hd1) 38: ov (over-voltage) hardware error (Hd2)	0
06-18	Fault record 2		0
06-19	Fault record 3		0
06-20	Fault record 4		0
06-21	Fault record 5		0
06-22	Fault record 6		0

Pr.	Parameter Name	Setting Range	Default
		39: occ hardware error (Hd3) 40: Auto-tuning error (AUE) 41: PID loss ACI (AFE) 42: PG feedback error (PGF1) 43: PG feedback loss (PGF2) 44: PG feedback stall (PGF3) 45: PG slip error (PGF4) 48: ACI loss (ACE) 49: External fault (EF) 50: Emergency stop (EF1) 51: External base block (bb) 52: Enter wrong password three times and locked (Pcod) 53: SW code error (ccod) 54: Illegal command (CE1) 55: Illegal data address (CE2) 56: Illegal data value (CE3) 57: Data is written to read-only address (CE4) 58: Modbus transmission time-out (CE10) 60: Brake transistor error (bF) 61: Y-connection / △-connection switch error (ydc) 62: Deceleration energy backup error (dEb) 63: Over slip error (oSL) 64: Electric valve switch error (ryF) 65: Hardware error of PG card (PGF5) 68: Reverse direction of the speed feedback (SdRv) 69: Over speed rotation feedback (SdOr) 70: Large deviation of speed feedback (SdDe) 71: Watchdog (WDTT) (applied to 230V / 460V models) 72: STO loss 1 (STL1) 73: Emergency stop for external safety (S1) 75: External brake error (Brk) (applied to 230V / 460V models) 76: Safe torque off (STO) 77: STO loss 2 (STL2) 78: STO loss 3 (STL3) 82: Output phase loss U phase (OPHL) 83: Output phase loss V phase (OPHL) 84: Output phase loss W phase (OPHL) 85: PG ABZ line off (AboF) (PG-02U)	

	Pr.	Parameter Name	Setting Range	Default
			86: PG UVW line off (UvoF) (PG-02U) 87: Overload protection at low frequency (oL3) 89: Rotor position detection error (RoPd) 90: Force to stop (FStp) 92: Pulse tuning Ld / Lq error (LEr) 93: CPU error 0 (TRAP) (Applied to 230V / 460V models) 101: CANopen guarding error (CGdE) 102: CANopen heartbeat error (CHbE) 104: CANopen bus off error (CbFE) 105: CANopen index error (CidE) 106: CANopen station address error (CAdE) 107: CANopen memory error (CFrE) 111: InrCOM time-out error (ictE) 112: PM sensorless shaft lock error (SfLK) 142: Auto-tune error 1 (no feedback current error) (AUE1) (applied to 230V / 460V models) 143: Auto-tune error 2 (motor phase loss error) (AUE2) (applied to 230V / 460V models) 144: Auto-tune error 3 (no-load current I_0 measuring error) (AUE3) (applied to 230V / 460V models) 148: Auto-tune error 4 (leakage inductance Lsigma measuring error) (AUE4) (applied to 230V / 460V models) 171: Over position error (oPEE)	
✓	06-23	Fault output option 1	0–65535 (refer to bit table for fault code)	0
✓	06-24	Fault output option 2	0–65535 (refer to bit table for fault code)	0
✓	06-25	Fault output option 3	0–65535 (refer to bit table for fault code)	0
✓	06-26	Fault output option 4	0–65535 (refer to bit table for fault code)	0
✓	06-27	Electronic thermal relay selection 2 (motor 2)	0: Inverter motor (with external forced cooling) 1: Standard motor (motor with fan on the shaft) 2: Disable	2
✓	06-28	Electronic thermal relay action time 2 (motor 2)	30.0–600.0 sec.	60.0
✓	06-29	PTC detection selection / PT100 motion	0: Warn and continue operation 1: Fault and ramp to stop 2: Fault and coast to stop 3: No warning	0
✓	06-30	PTC level / KTY84 Level	0.0–100.0%	50.0
	06-31	Frequency command at malfunction	0.00–599.00 Hz	Read only

	Pr.	Parameter Name	Setting Range	Default
	06-32	Output frequency at malfunction	0.00–599.00 Hz	Read only
	06-33	Output voltage at malfunction	0.0–6553.5 V	Read only
	06-34	DC bus voltage at malfunction	0.0–6553.5 V	Read only
	06-35	Output current at malfunction	0.0–6553.5 Amp	Read only
	06-36	IGBT temperature at malfunction	-3276.7–3276.7°C	Read only
	06-37	Capacitance temperature at malfunction	-3276.7–3276.7°C	Read only
	06-38	Motor speed at malfunction	-32767–32767 rpm	Read only
	06-39	Torque command at malfunction	-32767–32767%	Read only
	06-40	Status of the multi-function input terminal at malfunction	0000h–FFFFh	Read only
	06-41	Status of the multi-function output terminal at malfunction	0000h–FFFFh	Read only
	06-42	Drive status at malfunction	0000h–FFFFh	Read only
✓	06-44	STO latch selection	0: STO latch 1: STO no latch	0
✓	06-45	Output phase loss detection action (OPHL)	0: Warn and continue operation 1: Fault and ramp to stop 2: Fault and coast to stop 3: No warning	3
✓	06-46	Detection time for output phase loss	230V / 460V models: 0.000–65.535 sec. 575V / 690V models: 0.000–65.535 sec.	3.000 0.500
✓	06-47	Current detection level for output phase loss	0.00–100.00%	1.00
✓	06-48	DC brake time for output phase loss	0.000–65.535 sec.	0.000
✓	06-49	LvX auto-reset	0: Disable 1: Enable	0
✓	06-50	Time for input phase loss detection	0.00–600.00 sec.	0.20
	06-51	Capacitance oH warning level (applied to 230V / 460V models)	0.0–110.0 degree	Depending on the model power

	Pr.	Parameter Name	Setting Range	Default
✓	06-52	Ripple of input phase loss	230V models: 0.0–160.0 V_{DC} 460V models: 0.0–320.0 V_{DC} 575V models: 0.0–400.0 V_{DC} 690V models: 0.0–480.0 V_{DC}	30.0 60.0 75.0 90.0
✓	06-53	Input phase loss detection action (OrP)	0: Fault and ramp to stop 1: Fault and coast to stop	0
✓	06-55	Derating protection	0: Auto-decrease carrier frequency and limit output current 1: Constant carrier frequency and limit output current 2: Auto-decrease carrier frequency	0
✓	06-56	PT100 voltage level 1	0.000–10.000 V	5.000
✓	06-57	PT100 voltage level 2	0.000–10.000 V	7.000
✓	06-58	PT100 level 1 frequency protection	0.00–599.00 Hz	0.00
✓	06-59	PT100 activation level 1 protection frequency delay time	0–6000 sec.	60
✓	06-60	Software detection GFF current level	0.0–200.0%	60.0
✓	06-61	Software detection GFF filter time	0.00–655.35 sec.	0.10
	06-62	dEb reset bias level (applied to 230V / 460V models)	230V models: 0.0–100 V_{DC} 460V models: 0.0–200.0 V_{DC}	20.0 40.0
	06-63	Operation time of fault record 1 (Days)	0–65535 days	Read only
	06-64	Operation time of fault record 1 (Minutes)	0–1439 min.	Read only
	06-65	Operation time of fault record 2 (Days)	0–65535 days	Read only
	06-66	Operation time of fault record 2 (Minutes)	0–1439 min.	Read only
	06-67	Operation time of fault record 3 (Days)	0–65535 days	Read only
	06-68	Operation time of fault record 3 (Minutes)	0–1439 min.	Read only
	06-69	Operation time of fault record 4 (Days)	0–65535 days	Read only
	06-70	Operation time of fault record 4 (Minutes)	0–1439 min.	Read only
✓	06-71	Low current setting level	0.0–100.0%	0.0
✓	06-72	Low current detection time	0.00–360.00 sec.	0.00
✓	06-73	Low current action	0: No function 1: Fault and coast to stop	0

Pr.	Parameter Name	Setting Range	Default
		2: Fault and ramp to stop by the second deceleration time 3: Warn and continue operation	
06-86	PTC Type (applied to 230V / 460V models)	0–1 0: PTC 1: KTY84-130	0

07 Special Parameters

	Pr.	Parameter Name	Setting Range	Default
✓	07-00	Software brake chopper action level	230V models: 350.0–450.0 V_{DC} 460V models: 700.0–900.0 V_{DC} 575V models: 850.0–1116.0 V_{DC} 690V models: 939.0–1318.0 V_{DC}	370.0 740.0 895.0 1057.0
✓	07-01	DC brake current level	0–100%	0
✓	07-02	DC brake time at start-up	0.0–60.0 sec.	0.0
✓	07-03	DC brake time at STOP	0.0–60.0 sec.	0.0
✓	07-04	DC brake frequency at STOP	0.00–599.00 Hz	0.00
✓	07-05	Voltage increasing gain	1–200%	100
✓	07-06	Restart after momentary power loss	0: Stop operation 1: Speed tracking by the speed before the power loss 2: Speed tracking by the minimum output frequency	0
✓	07-07	Allowed power loss duration	0.0–20.0 sec.	2.0
✓	07-08	Base block time	0.0–5.0 sec.	Depending on the model power
✓	07-09	Current limit of speed tracking	20–200%	100
✓	07-10	Restart after fault action	0: Stop operation 1: Speed tracking by current speed 2: Speed tracking by minimum output frequency	0
✓	07-11	Number of times of restart after fault	0–10	0
✓	07-12	Speed tracking during start-up	0: Disable 1: Speed tracking by the maximum output frequency 2: Speed tracking by the motor frequency at start-up 3: Speed tracking by the minimum output frequency	0
✓	07-13	dEb function selection	0: Disable 1: dEb with auto-acceleration / auto-deceleration, the drive does not output the frequency after the power is restored. 2: dEb with auto-acceleration / auto-deceleration, the drive outputs the frequency after the power is restored 3: dEb low-voltage control, then the drive's voltage increases to 350 V_{DC} / 700 V_{DC} and ramps to stop after low frequency 4: dEb high-voltage control of 350 V_{DC} / 700 V_{DC}, and the drive ramps to stop	0
	07-14	dEb function reset time	0.0–25.0 sec.	3.0
✓	07-15	Dwell time at acceleration	0.00–600.00 sec.	0.00
✓	07-16	Dwell frequency at acceleration	0.00–599.00 Hz	0.00
✓	07-17	Dwell time at deceleration	0.00–600.00 sec.	0.00

	Pr.	Parameter Name	Setting Range	Default
✓	07-18	Dwell frequency at deceleration	0.00–599.00 Hz	0.00
✓	07-19	Fan cooling control	0: Fan always ON 1: Fan is OFF after the AC motor drive stops for one minute 2: Fan is ON when the AC motor drive runs; fan is OFF when the AC motor drive stops. 3: Fan turns ON when temperature (IGBT) reaches around 60°C. 4: Fan always OFF	0
✓	07-20	Emergency stop (EF) & force to stop selection	0: Coast to stop 1: Stop by the first deceleration time 2: Stop by the second deceleration time 3: Stop by the third deceleration time 4: Stop by the fourth deceleration time 5: System deceleration 6: Automatic deceleration	0
✓	07-21	Automatic energy-saving selection	0: Disabled 1: Power factor energy-saving improvement (for VF, SVC and VFPG control modes) 2: Automatic energy-saving (AES) optimization (for VF, SVC and VFPG control modes)	0
✓	07-22	Energy-saving gain	10–1000%	100
✓	07-23	Automatic voltage regulation (AVR) function	0: Enable AVR 1: Disable AVR 2: Disable AVR during deceleration	0
✓	07-24	Torque command filter time (V/F and SVC control mode)	0.001–10.000 sec.	0.500
✓	07-25	Slip compensation filter time (V/F and SVC control mode)	0.001–10.000 sec.	0.100
✓	07-26	Torque compensation gain	IM: 0–10 (when Pr.05-33 = 0) PM: 0–5000 (when Pr.05-33 = 1 or 2)	0
✓	07-27	Slip compensation gain	0.00–10.00	0.00 (Default value is 1.00 in SVC mode)
✓	07-29	Slip deviation level	0.0–100.0% 0: No detection	0.0
✓	07-30	Over-slip deviation detection time	0.0–10.0 sec.	1.0
✓	07-31	Over-slip deviation treatment	0: Warn and continue operation 1: Fault and ramp to stop 2: Fault and coast to stop 3: No warning	0

	Pr.	Parameter Name	Setting Range	Default
✓	07-32	Motor oscillation compensation factor	0–10000 0: Disable	1000
✓	07-33	Auto-restart interval of fault	0.0–6000.0 sec.	60.0
	07-38	PMSVC voltage feed forward gain	0.00–2.00	1.00
✓	07-41	Minimum frequency for AES	0.00–40.00 Hz	10.00
	07-42	Delay time for AES	0–600 sec.	5
✓	07-43	Targeted power factor angle for AES	0.00–65.00°	40.00
✓	07-44	Maximum voltage drop for AES	0.00–70.00%	60.00
✓	07-45	AES coefficient	0–10000%	100
	07-62	dEb gain (Kp)	0–65535	8000
	07-63	dEb gain (Ki)	0–65535	150

08 High-function PID Parameters

	Pr.	Parameter Name	Setting Range	Default
✓	08-00	Terminal selection of PID feedback	0: No function 1: Negative PID feedback: by analog input (Pr.03-00–03-02) 2: Negative PID feedback: by PG card pulse input, without direction (Pr.10-02) 3: Negative PID feedback:by PG card pulse input, with direction (Pr.10-02) 4: Positive PID feedback: by analog input (Pr.03-00–03-02) 5: Positive PID feedback: by PG card pulse input, without direction (Pr.10-02) 6: Positive PID feedback: by PG card pulse input, with direction (Pr.10-02) 7: Negative PID feedback: by communication protocols 8: Positive PID feedback: by communication protocols	0
✓	08-01	Proportional gain (P)	0.0–500.0	1.0
✓	08-02	Integral time (I)	0.00–100.00 sec. 0.0: No integral	1.00
✓	08-03	Differential time (D)	0.00–1.00 sec.	0.00
✓	08-04	Upper limit of integral control	0.0–100.0%	100.0
✓	08-05	PID output command limit	0.0–110.0%	100.0
✓	08-06	PID feedback value by communication protocol	-200.00–200.00%	Read only
✓	08-07	PID delay time	0.0–35.0 sec.	0.0
✓	08-08	Feedback signal detection time	0.0–3600.0 sec.	0.0
✓	08-09	Feedback signal fault treatment	0: Warn and continue operation 1: Fault and ramp to stop 2: Fault and coast to stop 3: Warn and operate at last frequency	0
✓	08-10	Sleep level	0.00–599.00 Hz / 0.00–200.00%	0.00
✓	08-11	Wake-up level	0.00–599.00 Hz / 0.00–200.00%	0.00
✓	08-12	Sleep delay time	0.0–6000.0 sec.	0.0
✓	08-13	PID feedback signal error deviation level	1.0–50.0%	10.0
✓	08-14	PID feedback signal error deviation detection time	0.1–300.0 sec.	5.0
✓	08-16	PID compensation selection	0: Parameter setting (Pr.08-17) 1: Analog input	0

	Pr.	Parameter Name	Setting Range	Default
✓	08-17	PID compensation	-100.0–100.0%	0.0
	08-18	Sleep mode function setting	0: Refer to PID output command 1: Refer to PID feedback signal	0
✓	08-19	Wake-up integral limit	0.0–200.0%	50.0
	08-20	PID mode selection	0: Serial connection 1: Parallel connection	0
	08-21	Enable PID to change the operation direction	0: Operation direction cannot be changed 1: Operation direction can be changed	0
✓	08-22	Wake-up delay time	0.00–600.00 sec.	0.00
✓	08-23	PID control flag	bit0 = 1, PID running in reverse follows the setting for Pr.00-23. bit0 = 0, PID running in reverse refer to PID's calculated value. bit1 = 1, two decimal places for PID Kp bit1 = 0, one decimal place for PID Kp	0000h

09 Communication Parameters

	Pr.	Parameter Name	Setting Range	Default
✓	09-00	Communication address	1–254	1
✓	09-01	COM1 transmission speed	4.8–115.2 Kbps	9.6
✓	09-02	COM1 transmission fault treatment	0: Warn and continue operation 1: Fault and ramp to stop 2: Fault and coast to stop 3: No warning, no fault and continue operation	3
✓	09-03	COM1 time-out detection	0.0–100.0 sec.	0.0
✓	09-04	COM1 communication protocol	1 : 7, N, 2 (ASCII) 2 : 7, E, 1 (ASCII) 3 : 7, O, 1 (ASCII) 4 : 7, E, 2 (ASCII) 5 : 7, O, 2 (ASCII) 6 : 8, N, 1 (ASCII) 7 : 8, N, 2 (ASCII) 8 : 8, E, 1 (ASCII) 9 : 8, O, 1 (ASCII) 10 : 8, E, 2 (ASCII) 11 : 8, O, 2 (ASCII) 12: 8, N, 1 (RTU) 13: 8, N, 2 (RTU) 14: 8, E, 1 (RTU) 15: 8, O, 1 (RTU) 16: 8, E, 2 (RTU) 17: 8, O, 2 (RTU)	1
✓	09-09	Communication response delay time	0.0–200.0 ms	2.0
	09-10	Communication main frequency	0.00–599.00 Hz	60.00
✓	09-11	Block transfer 1	0000–FFFFh	0000h
✓	09-12	Block transfer 2	0000–FFFFh	0000h
✓	09-13	Block transfer 3	0000–FFFFh	0000h
✓	09-14	Block transfer 4	0000–FFFFh	0000h
✓	09-15	Block transfer 5	0000–FFFFh	0000h
✓	09-16	Block transfer 6	0000–FFFFh	0000h
✓	09-17	Block transfer 7	0000–FFFFh	0000h
✓	09-18	Block transfer 8	0000–FFFFh	0000h
✓	09-19	Block transfer 9	0000–FFFFh	0000h
✓	09-20	Block transfer 10	0000–FFFFh	0000h
✓	09-21	Block transfer 11	0000–FFFFh	0000h
✓	09-22	Block transfer 12	0000–FFFFh	0000h

	Pr.	Parameter Name	Setting Range	Default
↗	09-23	Block transfer 13	0000–FFFFh	0000h
↗	09-24	Block transfer 14	0000–FFFFh	0000h
↗	09-25	Block transfer 15	0000–FFFFh	0000h
↗	09-26	Block transfer 16	0000–FFFFh	0000h
	09-30	Communication decoding method	0: Decoding method 1 (20xx) 1: Decoding method 2 (60xx)	1
	09-31	Internal communication protocol	0: Modbus 485 -1: Internal communication slave 1 -2: Internal communication slave 2 -3: Internal communication slave 3 -4: Internal communication slave 4 -5: Internal communication slave 5 -6: Internal communication slave 6 -7: Internal communication slave 7 -8: Internal communication slave 8 -10: Internal communication master -12: Internal PLC control	0
↗	09-33	PLC command force to 0	bit0: Before PLC scans, set up PLC target frequency=0 bit1: Before PLC scans, set up PLC target torque=0 bit2: Before PLC scans, set up the speed limit of torque control mode=0	0
	09-35	PLC address	1–254	2
	09-36	CANopen slave address	0: Disable 1–127	0
	09-37	CANopen speed	0: 1 Mbps 1: 500 Kbps 2: 250 Kbps 3: 125 Kbps 4: 100 Kbps (Delta only) 5: 50 Kbps	0
	09-39	CANopen warning record	bit0: CANopen guarding time out bit1: CANopen heartbeat time out bit2: CANopen SYNC time out bit3: CANopen SDO time out bit4: CANopen SDO buffer overflow bit5: Can bus off bit6: Error protocol of CANopen	Read only

Pr.	Parameter Name	Setting Range	Default
		bit8: The setting values of CANopen indexes are fail bit9: The setting value of CANopen address is fail bit10: The checksum value of CANopen indexes is fail	
09-40	CANopen decoding method	0: Disable (Delta-defined decoding method) 1: Enable (CANopen standard DS402 protocol)	1
09-41	CANopen communication status	0: Node reset state 1: Com reset state 2: Boot up state 3: Pre-operation state 4: Operation state 5: Stop state	Read only
09-42	CANopen control status	0: Not ready for use state 1: Inhibit start state 2: Ready to switch on state 3: Switched on state 4: Enable operation state 7: Quick stop active state 13: Error reaction activation state 14: Error state	Read only
09-45	CANopen master function	0: Disable 1: Enable	0
09-46	CANopen master address	0–127	100
09-49	CANopen extension setting	bit0: Index 604F and 6050 update to the 1st acceleration / deceleration time or not. bit0=0: update to the 1st acceleration / deceleration time (default) bit0=1: do not update bit1: The verification of CANopen identification code is distinguished by power module or drive series. bit1=0: distinguished by power module bit1=1: distinguished by drive series	0002h
09-60	Communication card identification	0–12 0: No communication card 1: DeviceNet Slave 2: Profibus-DP Slave 3: CANopen Slave / Master	Read only

	Pr.	Parameter Name	Setting Range	Default
			4: Modbus-TCP Slave 5: EtherNet / IP Slave 6: EtherCAT (applied to 230V / 460V models) 12: PROFINET (applied to 230V / 460V models)	
	09-61	Firmware version of communication card	Read only	Read only
	09-62	Product code	Read only	Read only
	09-63	Error code	Read only	Read only
↗	09-70	Communication card address (for DeviceNet or PROFIBUS)	DeviceNet: 0–63 Profibus-DP: 1–125	1
↗	09-71	Communication card speed setting (for DeviceNet)	Standard DeviceNet: 0: 125 Kbps 1: 250 Kbps 2: 500 Kbps 3: 1 Mbps (Delta only) Non-standard DeviceNet: (Delta only) 0: 10 Kbps 1: 20 Kbps 2: 50 Kbps 3: 100 Kbps 4: 125 Kbps 5: 250 Kbps 6: 500 Kbps 7: 800 Kbps 8: 1 Mbps	2
↗	09-72	Additional settings for communication card speed (for DeviceNet)	0: Standard DeviceNet In this mode, the baud rate can only be 125 Kbps, 250 Kbps or 500 Kbps in standard DeviceNet speed 1: Non-standard DeviceNet In this mode, DeviceNet baud rate can be same as that for CANopen (0–8).	0
↗	09-75	Communication card IP configuration (for Modbus TCP)	0: Static IP 1: Dynamic IP (DHCP)	0
↗	09-76	Communication card IP address 1 (for Modbus TCP)	0–65535	0
↗	09-77	Communication card IP address 2 (for Modbus TCP)	0–65535	0
↗	09-78	Communication card IP address 3 (for Modbus TCP)	0–65535	0

	Pr.	Parameter Name	Setting Range	Default
✓	09-79	Communication card IP address 4 (for Modbus TCP)	0–65535	0
✓	09-80	Communication card address mask 1 (for Modbus TCP)	0–65535	0
✓	09-81	Communication card address mask 2 (for Modbus TCP)	0–65535	0
✓	09-82	Communication card address mask 3 (for Modbus TCP)	0–65535	0
✓	09-83	Communication card address mask 4 (for Modbus TCP)	0–65535	0
✓	09-84	Communication card gateway address 1 (for Modbus TCP)	0–65535	0
✓	09-85	Communication card gateway address 2 for Modbus TCP)	0–65535	0
✓	09-86	Communication card gateway address 3 (for Modbus TCP)	0–65535	0
✓	09-87	Communication card gateway address 4 (for Modbus TCP)	0–65535	0
✓	09-88	Communication card password (Low word) (for Modbus TCP)	0–99	0
✓	09-89	Communication card password (High word) (for Modbus TCP)	0–99	0
✓	09-90	Reset communication card (for Modbus TCP)	0: Disable 1: Reset to defaults	0
✓	09-91	Additional settings for the communication card (for Modbus TCP)	bit0: Enable IP filter bit1: Enable internet parameters (1 bit). When the IP address is set, this bit is enabled. After updating the parameters for the communication card, this bit changes to disabled. bit2: Enable login password (1 bit). When you enter the login password, this bit is enabled. After updating the parameters for the communication card, this bit changes to disabled.	0
	09-92	Communication card status (for Modbus TCP)	bit0: Enable password When the communication card is set with a password, this bit is enabled. When the password is cleared, this bit is disabled.	0

10 Feedback Control Parameters

	Pr.	Parameter Name	Setting Range	Default
	10-00	Encoder type selection	0: Disable 1: ABZ 2: ABZ (Delta encoder for Delta permanent magnet synchronous AC motor) 3: Resolver 4: ABZ / UVW 5: MI8 single-phase pulse input 6: Sin / Cos, absolute (A / B, C / D, R) 7: Sin / Cos, incremental (A / B, R)	0
	10-01	Encoder pulses per revolution	1–20000	600
	10-02	Encoder input type setting	0: Disable 1: A / B phase pulse inputs, run forward if A-phase leads B-phase by 90 degrees 2: A / B phase pulse inputs, run forward if B-phase leads A-phase by 90 degrees 3: A-phase is a pulse input and B-phase is a direction input (L = reverse direction, H = forward direction) 4: A-phase is a pulse input and B-phase is a direction input (L = forward direction, H = reverse direction) 5: Single-phase input	0
✓	10-03	Frequency division output setting (denominator)	1–255	1
✓	10-04	Mechanical gear at load side A1	1–65535	100
✓	10-05	Mechanical gear at motor side B1	1–65535	100
✓	10-06	Mechanical gear at load side A2	1–65535	100
✓	10-07	Mechanical gear at motor side B2	1–65535	100
✓	10-08	Treatment for encoder / speed observer feedback fault	0: Warn and continue operation 1: Fault and ramp to stop 2: Fault and coast to stop	2
✓	10-09	Detection time of encoder / speed observer feedback fault	0.0–10.0 sec. 0: Disable	1.0
✓	10-10	Encoder / speed observer stall level	0–120% 0: No function	115
✓	10-11	Detection time of encoder / speed observer stall	0.0–2.0 sec.	0.1

	Pr.	Parameter Name	Setting Range	Default
✓	10-12	Encoder / speed observer stall action	0: Warn and continue operation 1: Fault and ramp to stop 2: Fault and coast to stop	2
✓	10-13	Encoder / speed observer slip range	0–50% 0: No function	50
✓	10-14	Detection time of encoder / speed observer slip	0.0–10.0 sec.	0.5
✓	10-15	Encoder / speed observer stall and slip error action	0: Warn and continue operation 1: Fault and ramp to stop 2: Fault and coast to stop	2
	10-16	Pulse input type setting	0: Disable 1: Phases A and B are pulse inputs, forward direction if A-phase leads B-phase by 90 degrees 2: Phases A and B are pulse inputs, forward direction if B-phase leads A-phase by 90 degrees 3: Phase A is a pulse input and phase B is a direction input (L = reverse direction, H = forward direction). 4: Phase A is a pulse input and phase B is a direction input. (L = forward direction, H = reverse direction). 5: Single-phase pulse input (MI8) (applied to 230V / 460V models)	0
✓	10-17	Electrical gear A	1–65535	100
✓	10-18	Electrical gear B	1–65535	100
✓	10-21	PG2 pulse input speed command low pass filter time	0.000–65.535 sec.	0.100
✓	10-24	FOC & TQC function control	bit0: ASR control at sensorless torque (0: use PI as ASR; 1: use P as ASR) bit11: Activate DC braking when executing zero torque command (0: ON; 1: OFF) bit12: FOC Sensorless mode, cross zero means speed goes from negative to positive or reverse direction (0: determined by stator frequency; 1: determined by speed command) bit15: Direction control at open loop status (0: Switch ON direction control; 1: Switch OFF direction control)	0
✓	10-25	FOC bandwidth for speed observer	20.0–100.0 Hz	40.0
✓	10-26	FOC minimum stator frequency	0.0–10.0% fN	2.0
✓	10-27	FOC low-pass filter time constant	1–1000 ms	50

	Pr.	Parameter Name	Setting Range	Default
✓	10-28	FOC gain for excitation current rise time	33–100% Tr	100
✓	10-29	Upper limit of frequency deviation	0.00–200.00 Hz	20.00
	10-30	Resolver pole pair	1–50 pole pairs	1
✓	10-31	I/F mode, current command	0–150% rated current of the motor	40
✓	10-32	PM FOC sensorless speed estimator bandwidth (high speed)	0.00–600.00 Hz	5.00
✓	10-33	PM FOC sensorless speed estimator bandwidth (low speed)	0.00–600.00 Hz	1.00
✓	10-34	PM sensorless speed estimator low-pass filter gain	0.00–655.35	1.00
✓	10-35	AMR (Kp) gain	0.00–3.00	1.00
✓	10-36	AMR (Ki) gain	0.00–3.00	0.20
✓	10-37	PM sensorless control word	0000–FFFFh	0000h
	10-39	Frequency to switch from I/F mode to PM sensorless mode	0.00–599.00 Hz	20.00
✓		Frequency to switch from IMVF mode to IMFOCPG mode when Pr.11-00 bit11=1 in IMFOCPG mode	0.00–599.00 Hz	20.00
	10-40	Frequency to switch from PM sensorless mode to I/F mode	0.00–599.00 Hz	20.00
✓		Frequency to switch from IMFOCPG mode to IMVF mode when Pr.11-00 bit11=1 in IMFOCPG mode	30.00–599.00 Hz	40.00
✓	10-41	I/F mode, Id current low pass-filter time	0.0–6.0 sec.	0.2
✓	10-42	Initial angle detection pulse value	0.0–3.0	1.0
	10-43	PG card version	0.00–655.35	Read only
	10-47	PG1 pulse imputation scaling factor	0–3	0
✓	10-49	Zero voltage time during start-up	0.000–60.000 sec.	0.000
✓	10-50	Reverse angle limit (Electrical angle)	0.00–30.00 degree	10.00
✓	10-51	Injection frequency	0–1200 Hz	500

	Pr.	Parameter Name	Setting Range	Default
✓	10-52	Injection magnitude	0.0–200.0 V 230V models: 0.0–100.0 V 460V models: 0.0–200.0 V 575V models: 0.0–200.0 V 690V models: 0.0–200.0 V	15.0 30.0 30.0 30.0
✓	10-53	PM initial rotor position detection method	0: Disable 1: Force attracting the rotor to zero degrees 2: High frequency injection 3: Pulse injection	0
	10-54	Magnetic flux linkage estimate low-speed gain	10–1000%	100
	10-55	Magnetic flux linkage estimate high-speed gain	10~1000%	100
✓	10-56	Kp of phase-locked loop	10~1000%	100
✓	10-57	Ki of phase-locked loop	10~1000%	100
	10-58	Mutual inductance gain compensation	0.00~655.35	1.00

11 Advanced Parameters

	Pr.	Parameter Name	Setting Range	Default
	11-00	System control	bit0: Auto-tuning for ASR bit1: Inertia estimate (only for FOCPG control mode) bit2: Zero-speed servo bit6: 0 Hz linear-cross (applied to 230V / 460V models) bit7: Saving or not saving the frequency bit8: Maximum speed for point-to-point position control bit11: Switch between IMFOCPG and IMVF modes	0000h
	11-01	Per-unit of system inertia	1–65535 (256 = 1PU)	256
✓	11-02	ASR1 / ASR2 switch frequency	5.00–599.00 Hz	7.00
✓	11-03	ASR1 low-speed bandwidth	1–40 Hz (IM) / 1–100 Hz (PM)	10
✓	11-04	ASR2 high-speed bandwidth	1–40 Hz (IM) / 1–100 Hz (PM)	10
✓	11-05	Zero-speed bandwidth	1–40 Hz (IM) / 1–100 Hz (PM)	10
✓	11-06	ASR 1 gain	0–40 Hz (IM) / 1–100 Hz (PM)	10
✓	11-07	ASR 1 integral time	0.000–10.000 sec.	0.100
✓	11-08	ASR 2 gain	0–40 Hz (IM) / 0–100 Hz (PM)	10
✓	11-09	ASR 2 integral time	0.000–10.000 sec.	0.100
✓	11-10	ASR gain of zero speed	0–40 Hz (IM) / 0–100 Hz (PM)	10
✓	11-11	ASR1 integral time of zero speed	0.000–10.000 sec.	0.100
✓	11-12	Gain for ASR speed feed forward	0–150%	0
✓	11-13	PDFF gain value	0–200%	30
✓	11-14	ASR output low pass filter time	0.000–0.350 sec.	0.008
✓	11-15	Notch filter depth	0–100 dB	0
✓	11-16	Notch filter frequency	0.0–6000.0 Hz	0.0
✓	11-17	Forward motor torque limit Quadrant I	0–500%	500
✓	11-18	Forward regenerative torque limit Quadrant II	0–500%	500
✓	11-19	Reverse motor torque limit Quadrant III	0–500%	500
✓	11-20	Reverse regenerative torque limit Quadrant IV	0–500%	500
✓	11-21	Flux weakening curve for motor 1 gain value	0–200%	90
✓	11-22	Flux weakening curve for motor 2 gain value	0–200%	90

	Pr.	Parameter Name	Setting Range	Default
✓	11-23	Flux weakening area speed response	0–150%	65
✓	11-24	APR gain	0.00–40.00 Hz (IM) / 0–100.00 Hz (PM)	5.00
✓	11-25	Gain value for the APR feed forward	0–100	90
✓	11-26	APR feedforward low pass filter bandwidth	0.00–655.35 sec.	10.00
✓	11-27	Maximum torque command	0–500%	100
✓	11-28	Torque offset source	0: Disable 1: Analog signal input (Pr.03-00) 2: Pr.11-29 3: Controlled through external terminals (Pr.11-30–11-32)	0
✓	11-29	Torque offset setting	-100.0–100.0%	0.0
✓	11-30	High torque offset	-100.0–100.0%	30.0
✓	11-31	Middle torque offset	-100.0–100.0%	20.0
✓	11-32	Low torque offset	-100.0–100.0%	10.0
✓	11-33	Torque command source	0 : Digital keypad 1 : RS-485 communication (Pr.11-34) 2: Analog signal input (Pr.03-00–03-02) 3: CANopen 5: Communication card	0
✓	11-34	Torque command	-100.0–100.0% (Pr.11-27 set value = 100%)	0.0
✓	11-35	Torque command filter time	0.000–1.000 sec.	0.000
	11-36	Speed limit selection	0: Set by Pr.11-37 (Forward speed limit) and Pr.11-38 (reverse speed limit) 1: Set by Pr.00-20 (Master frequency source command) and Pr.11-37, Pr.11-38 2: Set by Pr.00-20 (Master frequency source command).	0
✓	11-37	Forward speed limit (torque mode)	0–120%	10
✓	11-38	Reverse speed limit (torque mode)	0–120%	10
	11-39	Zero torque command mode selection	0: Torque mode 1: Speed mode	0
✓	11-40	~~Point to point~~ Position control command source	0: Input from internal register 1: Input from external pulse 2: RS-485 3: CANopen 5: Communication card	0
✓	11-42	System control flag	0000–FFFFh	0000h

	Pr.	Parameter Name	Setting Range	Default
✓	11-43	Position control maximum frequency	0.00–599.00 Hz	60.00
✓	11-44	Position control acceleration time	0.00–655.35 sec.	1.00
✓	11-45	Position control deceleration time	0.00–655.35 sec.	1.00
	11-46	Torque output filter time (applied to 230V / 460V models)	0.000–65.535 sec.	0.050
	11-47	Notch filter bandwidth	0–1000 Hz	0
	11-50	APR S-curve time	0.000–1.000	0.300
	11-51	Maximum allowable position error	0–65535	1000
	11-52	Allowable position error range	0–65535	10
	11-53	Allowable position error cumulative time	0.000–65.535 sec.	0.500
	11-54	Treatment to the large position control error	0: Warn and continue operation (display oPE on keypad) 1: Fault and ramp to stop (display oPEE on keypad) 2: Fault and coast to stop (display oPEE on keypad)	0
✓	11-56	Software positive limit (revolution)	-30000–30000 revolutions	30000
✓	11-57	Software positive limit (pulse)	Refer to Pr.10-01 setting	0
✓	11-58	Software negative limit (revolution)	-30000–30000 revolutions	-30000
✓	11-59	Software negative limit (pulse)	Refer to Pr.10-01 setting	0
	11-60	Position control bit	bit0: Enable position memory function bit1: The pulse per revolution at load side counts by ppr bit2: Enable software limit switch function bit3: Enable hardware limit switch function	00Ah
	11-62	Encoder at load side ppr number (high byte)	0–65535	0
	11-63	Encoder at load side ppr number (low byte)	0–65535	2400
	11-65	Single-point positioning position (high byte)	0–ppr number at load side	0
	11-66	Single-point positioning position (low byte)	0–ppr number at load side	0
	11-68	Homing method	0000h–0128h	0008h
	11-69	Homing control time out	0.0–6000.0 sec.	60.0
	11-70	Homing control 1st step speed	0.00–599.00 Hz	8.00
	11-71	Homing control 2nd step speed	0.00–599.00 Hz	2.00

Pr.	Parameter Name	Setting Range	Default
11-72	Homing control acceleration / deceleration time (0–Homing control 1st step speed)	0.00–600.00 sec.	10.00
11-73	Homing control offset (revolution)	-30000–30000 revolutions	0
11-74	Homing control offset (pulse)	Refer to Pr.10-01 setting	0
11-75	Position record (revolution)	-30000–30000 revolutions	0
11-76	Position record (pulse)	Refer to Pr.10-01 setting	0
11-78	HALT revived selection	0: Stopped 1: Continue according to the previous position command	0

13 Application Parameters by Industry (applied to 230V / 460V models)

Pr.	Parameter Name	Setting Range	Default
13-00	Industry-specific parameter application	0: Disabled 1: User-defined parameter 2: Compressor (IM) 3: Fan 4: Pump 10: Air Handling Unit, AHU	0

14 Extension Card Parameter

	Pr.	Parameter Name	Setting Range	Default
✓	14-00	Extension card Input terminal selection (AI10)	0: Disable 1: Frequency command 2: Torque command (torque limit under speed mode) 3: Torque compensation command 4: PID target value 5: PID feedback signal 6: Thermistor (PTC / KTY-84) input value 7: Positive torque limit 8: Negative torque limit 9: Regenerative torque limit 10: Positive / negative torque limit 11: PT100 thermistor input value 13: PID compensation value	0
✓	14-01	Extension card Input terminal selection (AI11)		0
✓	14-08	Analog input filter time (AI10)	0.00–20.00 sec.	0.01
✓	14-09	Analog input filter time (AI11)	0.00–20.00 sec.	0.01
	14-10	Analog input 4–20 mA signal loss selection (AI10)	0: Disable 1: Continue operation at the last frequency 2: Decelerate to 0 Hz 3: Stop immediately and display ACE	0
	14-11	Analog input 4–20 mA signal loss selection (AI11)		0
✓	14-12	Extension card output terminal selection (AO10)	0: Output frequency (Hz) 1: Frequency command (Hz) 2: Motor speed (Hz) 3: Output current (rms) 4: Output voltage 5: DC bus voltage 6: Power factor 7: Power 8: Torque 9: AVI 10: ACI 11: AUI 12: Iq current command 13: Iq feedback value 14: Id current command 15: Id feedback value 18: Torque command 19: PG2 frequency command 20: CANopen analog output	0
✓	14-13	Extension card output terminal selection (AO11)		0

	Pr.	Parameter Name	Setting Range	Default
			21: RS-485 analog output 22: Communication card analog output 23: Constant voltage output 25: CANopen and RS-485 analog output	
✓	14-14	Analog output 1 gain output (AO10)	0.0–500.0%	100.0
✓	14-15	Analog output 1 gain output (AO11)	0.0–500.0%	100.0
✓	14-16	Analog output 1 in 0–10 V REV direction (AO10)	0: Absolute value of output voltage 1: Reverse output 0V; Forward output 0–10V 2: Reverse output 5–0V; Forward output 5–10V	0
✓	14-17	Analog output 1 in 0–10 V REV direction (AO11)		0
✓	14-18	Extension card input selection (AI10)	0: 0–10 V (AVI10) 1: 0–20 mA (ACI10) 2: 4–20 mA (ACI10)	0
✓	14-19	Extension card input selection (AI11)	0: 0–10 V (AVI11) 1: 0–20 mA (ACI11) 2: 4–20 mA (ACI11)	0
	14-20	AO10 DC output setting level	0.00–100.00%	0.00
	14-21	AO11 DC output setting level	0.00–100.00%	0.00
✓	14-22	AO10 filter output time	0.00–20.00 sec.	0.01
✓	14-23	AO11 filter output time	0.00–20.00 sec.	0.01
✓	14-36	AO10 output selection	0: 0–10 V 1: 0–20 mA 2: 4–20 mA	0
✓	14-37	AO11 output selection		0